

SUBSTITUTE SPECIFICATION

TITLE OF THE INVENTION

Strawberry Plant Named 'Yuval'

5 CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims priority of Israel Plant Breeder's Rights application Ser. No. 3428/02, filed October 21, 2002.

10 STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.

None.

LATIN NAME OF THE GENUS AND SPECIES OF THE PLANT CLAIMED

Fragaria x ananassa

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VARIETY DENOMINATION

'Yuval'

BACKGROUND OF THE INVENTION

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This new variety was developed from an organized, scientifically designated, breeding program, carried out by Fertiseeds LTD, Rehovot, Israel. This new variety originated as a single seedling selected from a seedling population obtained by a cross in March 2000 between female line #7 (a single plant selection from a selfing population of

variety 'Tamar,' U.S. Plant Pat. No. 11,135) and breeding line #3 (a single plant selection from a selfing population of variety 'Bella,' unpatented). A single plant selection from the cross between Line #7 and Line #3 was propagated by runners and subsequently reproduced by meristem culture at Sharon Valley, Israel in August 2000. In every generation (three
5 generations) the plant populations were observed carefully for variants and off types – no variants or off types were found.

BRIEF SUMMARY OF THE INVENTION

'Yuval' is a new and distinct cultivar of *Fragaria x ananassa*. Yuval is able to grow
10 from September and produce fruits starting in November and lasting until the following summer. The production of the fruit beginning in November (Northern Hemisphere, latitude 30-33 degrees) is two months earlier than short day varieties of *Fragaria* species. The fruit of the "Yuval" variety is characterized by a unique, uniform color, as well as very desirable taste, texture, shape and size.

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BRIEF DESCRIPTION OF THE PHOTOGRAPH

FIG.1 is a photograph of the "Yuval" variety, illustrating the fruit.

FIG.2 is a photograph of the "Yuval" variety, illustrating a cross section of the fruit.

DETAILED BOTANICAL DESCRIPTION

20 The "Yuval" variety was grown in fall-winter, under polyethylene tunnels in Israel. "Yuval" is an 'infra short day' variety, flowering earlier than 'short day' type strawberry varieties. Infra-Short-Day (I.S.D.) varieties are defined as varieties which initiate floral bud primordia under regimes of 13-14 hours at the time that night temperatures are about 22 °C

to 26 °C, compared to strawberry types classified as 'short day', that do not initiate floral bud primordia under above mentioned conditions, thus resulting in early flowering and fruit production. Flowering and fruit production are affected by the use of polyethylene tunnels, protecting the plants against wind, and more importantly against rain, which causes
5 malformation of the fruit as well as fruit decay.

This production technique, when practiced by the skilled artisan, does not involve temperature or light control, but normal field conditions. Mother plants were stored at 2 °C from December/January through April. They were planted in the nursery without further treatment. Runners with plantlets were produced during summer. These young plantlets were
10 collected from the nursery in September and transferred to raised beds. Average temperatures at that time of the year are 30 °C during the day and 22 °C at night. Water and fertilizers were applied through drip irrigation.

An example of an optimum planting date is between September 15 and 25, with the approximate date of flowering from October 5 to 15 and the approximate date of first fruiting
15 from November 5 to 25. Flowering is not induced by chilling, but by natural exposure to short days (13-14 hours) characteristic of late summer.

'Yuval' has no tendency toward fruit malformation. Disease tolerance in 'Yuval' appears normal in that no particular problematic conditions arose during trials. However, there were indications that 'Yuval' is tolerant to Phytophthora. The type of bearing is
20 remontant, i.e., 'Yuval' blooms continuously during late fall, winter and spring.

The fruit shape of 'Yuval' is similar to the strawberry variety 'Dorit' (U.S. Plant Pat. No. 7,869). The fruit is longer than broad, with primary, secondary and tertiary fruit possessing almost similar shape. The fruit is of good firmness with a red color.

'Yuval' flowers two months earlier than known short day strawberry varieties. A close known variety would be 'Dorit' (U.S. Plant Pat. No. 7,869); also see the new varieties 'Sharon' (U.S. Plant Pat. No. 7,881); 'Shalom' (U.S. Plant Pat. No. 7,876); 'Smadar' (U.S. Plant Pat. No. 7,865); 'Ofra' (U.S. Plant Pat. No. 8,746); 'Virginia' (U.S. Plant Pat. No. 8,748; 'Nama' (U.S. Plant Pat. No. 8,747). Additionally, early flowering results in early fruit production.

A comparison of 'Yuval' to 'Bella' and 'Tamar' reveals a number of distinguishing characteristics, as illustrated in Table 1:

TABLE 1

Characteristic	'Yuval'	'Bella'	'Tamar'
Date flowering begins*	Very early	Early	Very early to early
Fruit color	Red	Light red	Red
Fruit shape	Ovate perfect	Ovate to round	Ovate to conical
Uniformity of fruit	Very uniform	Not uniform	Not uniform
Fruit malformation	Very uniform	Light malformation	Malformed
Plant vigor	Compact	Compact	Vigorous
Fruit size	Medium small	Medium	Large to medium

* Under prevailing conditions in Sharon Valley, Israel

The following is a detailed botanical description of 'Yuval,' based on observations made at Rehovot, Israel. Color readings described herein were taken under natural light conditions and color identifications were made by reference to the Royal Horticultural Society Colour Chart, except where common terms of color definition are employed. It

should be understood that the botanical and analytical characteristics described will vary somewhat depending upon cultural practices and climatic conditions, and can vary with location and season. Quantified measurements are expressed as an average of measurements taken from a number of individual plants of the new variety. The measurements of any
5 individual plant, or any group of plants, of the new variety may vary from the stated average.

Plant

1. Height	14-19 cm
2. Diameter	25-30 cm
3. Habit	Compact
4. Density	Dense
5. Vigor	Medium

Leaf

1. Length	18-22 cm
2. Width	12-16 cm
3. Green Color of upper side	Medium RHS 147A, 147B (Compare to 'Dorit')
4. Blistering	Medium
5. Cross section	Concave
6. No. of leaflets	Sometimes >2

Petiole

- | | |
|----------------|----------------------|
| 1. Length | 10-12 cm |
| 2. Thickness | 3-4 mm |
| 3. Pubescence | Medium |
| 4. Green Color | Light green RHS 144B |

Terminal leaflet

- | | |
|------------------------|-------------------|
| 1. Length/ Width ratio | Longer than broad |
| 2. Shape of Base | Obtuse |
| 3. Shape of Teeth | Rounded |
| 4. Length | 5-8 cm |
| 5. Width | 5-7 cm |

Calyx

- | | |
|---|----------------------|
| 1. Diameter of Primary Calyx | 20-40 mm |
| 2. Diameter of Secondary Calyx | 20-30 mm |
| 3. Diameter of Tertiary Calyx | 20-30 mm |
| 4. Size of Inner Calyx in relation to Outer Calyx | Same size |
| 5. Calyx Color | Light green RHS 144B |

Flower

- | | |
|---------------------------------|----------|
| 1. Diameter of Primary Flower | 20-26 mm |
| 2. Diameter of Secondary Flower | 20-26 mm |
| 3. Diameter of Tertiary Flower | 20-26 mm |

- | | |
|-----------------------------------|--|
| 4. Spacing of petals | Overlapping |
| 5. Petal Length | 10-12 mm |
| 6. Petal width | 10-14 mm |
| 7. Petal length/ width | Broader than long |
| 8. Time of beginning of flowering | Very early (approximately the first week of October under the prevailing conditions); compare to 'Dorit' |
| 9. Fragrance | Mild |

Stolon

- | | |
|---------------------------|-----------|
| 1. Number per plant | Many |
| 2. Thickness | 3.5-4 mm |
| 3. Pubescence | Weak |
| 4. Anthocyanin coloration | Very weak |

Inflorescence

- | | |
|---------------------------------|----------------------|
| 1. Position relative to foliage | Same |
| 2. Peduncle length | Ca. 11 cm |
| 3. Peduncle thickness | Ca. 3 mm |
| 4. Peduncle color | Light green RHS 144B |
| 5. Peduncle pubescence | Medium dense |

Fruit

Time of first ripening Very Early (first week of November
in Hod HaSharon, Israel)

Primary Fruit

1. Length 40-50 mm

2. Width 35-50 mm

3. Shape Cordial; similar to 'Dorit,' but
without the tendency to produce
malformed fruits.

4. Weight Ca. 25 g

Secondary Fruit

1. Length 36-50 mm

2. Width 30-40 mm

3. Shape Cordial

4. Weight Ca. 24 g

Tertiary Fruit

1. Length 30-45 mm

2. Width 25-35 mm

3. Shape Cordial

4. Weight Ca. 24 g

Fruit

1. Band without achenes	Narrow
2. Unevenness of surface	Very weak
3. Color	Red 44 A
4. Evenness of color	Even
5. Glossiness	Very Strong
6. Insertions of achenes	Level with surface
7. Insertions of calyx	Below Surface
8. Rose of calyx segments	Detached
9. Size of calyx in relation to fruit diameter	Smaller
10. Adherence of calyx	Strong
11. Firmness	Medium-firm
12. Color of flesh	Orange-red 438
13. Evenness of flesh color	Uneven
14. Sweetness	Strong
15. Acidity	Weak-medium
16. Yield	Very high (See Table 2)
17. Eating Quality	Excellent (See Table 3)
18. Fruit Structure	Semi-hollow
19. Color of Achenes	Light brown to deep yellow

TABLE 2
COMPARATIVE YIELD OF 'YUVAL'

	November	December	January	February	March	April
'Yuval'	60	80	100	80	120	160
'Dorit'	30	70	100	100	100	100
'Ofra'	50	60	60	100	100	100
'Chandler'	0	0	30	150	150	120

Note: Average yield in g./plant in Hod HaSharon, Israel

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TABLE 3
COMPARATIVE FRUIT CHARACTERISTICS OF 'YUVAL'

	T.S.S.	Acidity	Aroma	Taste
Yuval	8.5-11.0	1.0	5	Excellent
Dorit	8.5-9.5	1.0	5	Good
Ofra	8.0-9.5	1.0	4	Good
Chandler	6.5-7.5	0.8	4	Slightly acidic

Notes:

1. T.S.S. - Total Soluble Solids (Sugars) expresses fruit sweetness and was determined with a refractometer.

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2. Percent of acidity was determined as follows: 2 cc juice extract was mixed with 20 cc water. Five drops of phenolphthalein was added and the mixture was titrated with NaOH. The percent acidity is calculated as the quantity of NaOH(cc) X 0.32.

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